



FROEHLING & ROBERTSON, INC.

Engineering Stability Since 1881

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November 27, 2017 (revised February 5, 2018)

North Carolina Department of Transportation
Geotechnical Engineering Unit
1020 Birch Ridge Drive
Raleigh, North Carolina 27610

Attn.: Mr. Gordon Box, L.G.
GeoEnvironmental Project Manager

Re: State Project: R-2530B
WBS Element: 34446.1.6
NC 24-27 from Bird Road in Albemarle to West of the Pee Dee River

Subject: Preliminary Site Assessment
Parcel #052 – Hoyle D and Jean B Poplin (Parsonage)
2228 East Main Street
Albemarle, North Carolina
F&R Project #66V-0092

Dear Mr. Box:

Froehling and Robertson, Inc. (F&R) has completed the authorized Preliminary Site Assessment at the Hoyle D and Jean B Poplin property located in Albemarle, North Carolina. The work was performed in general accordance with F&R's Proposal No. 1866-00132, dated June 14, 2017 (and revised June 22, 2017). Notice to Proceed was issued to F&R on July 6, 2017. This report documents our field activities, presents the results of laboratory analysis and provides estimated quantities of petroleum impacted soils.

Please do not hesitate to contact us if you should have any questions regarding this report.

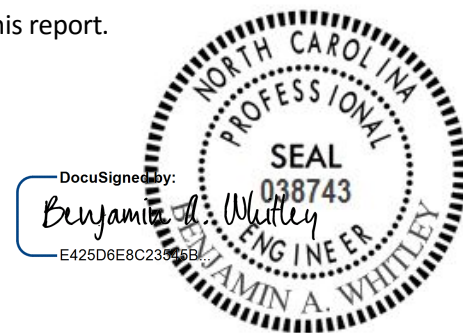
Sincerely,

FROEHLING & ROBERTSON, INC.

DocuSigned by:

4DB7F275EBFD410...

Clint E. Sorrell
Environmental Scientist



DocuSigned by:



E425D6E8C23545B...

Benjamin A. Whitley, P.E.
GeoEnvironmental Services Manager



PRELIMINARY SITE ASSESSMENT

Hoyle D and Jean B Poplin (Parcel #052)

Parsonage

2228 East Main Street

Albemarle, North Carolina

State Project: R-2530B

WBS Element: 34446.1.6

F&R Project #66V-092

November 27, 2017 (revised February 5, 2018)

Prepared for:

North Carolina Department of Transportation

Geotechnical Engineering Unit

1020 Birch Ridge Drive

Raleigh, NC 27610



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**Preliminary Site Assessment Report
Hoyle D and Jean B Poplin Property (Parcel #052)
Albemarle, Stanly County, North Carolina
F&R Project No. 66V-0092**

1.0 Introduction

Froehling and Robertson, Inc. (F&R) has prepared this Preliminary Site Assessment (PSA) Report to document soil assessment activities performed at the Hoyle D and Jean B Poplin Property addressed as 2228 East Main Street, in Albemarle, Stanly County, North Carolina. The site is located on the southwest quadrant of the East Main Street and Anderson Road intersection as shown in Appendix I, Figures 1 and 2. As indicated in the Request for Technical and Cost Proposal (RFTCP), the site operates as a church. According to the NCDEQ UST Section Registry, the site has been assigned Facility ID # MO-5630. In addition, one incident has been reported, but was closed in 1999.

According to the NCDOT within their RFTCP, acquisition of right-of-way is necessary for the proposed NC 24-27 design. As such, the NCDOT requested a PSA be performed to assess the possibility of encountering petroleum impacted soil from known or unknown USTs, and to locate USTs which may exist within proposed easements and right-of-way at the project site.

The PSA was performed in general accordance with F&R's Proposal No. 1866-00132, dated June 14, 2017 (and revised June 22, 2017) with Notice to Proceed issued to F&R by the NCDOT on July 6, 2017. The purpose of this report is to document field activities, present the results of laboratory analysis, and provide estimated quantities of petroleum impacted soils.

The existing on-site structure is one-story in height and is presumably of brick construction. The site also contains a gravel parking area to the east of the residential structure. The remainder of the site consists of a paved driveway and cleared/wooded land. The site is bordered to the north by East Main Street; to the south by wooded land; to the east by Anderson Road; and to the west by Deek Mechanical Inc. Access to the site is gained from Anderson Road to the east.

2.0 Geophysical Survey

Prior to F&R's soil assessment activities, Pyramid Environmental & Engineering, P.C. (Pyramid) conducted a geophysical survey to locate suspect metal underground storage tanks (USTs). The geophysical work was conducted from July 24 to July 25, 2017, and was performed within the proposed right-of-way of East Main Street and Anderson Road.



The geophysical investigation consisted of electromagnetic (EM) induction surveys using a Geonics EM61 instrument. Ground-penetrating radar (GPR) investigations of selected EM61 anomalies were investigated using a Geophysical Survey Systems UtilityScan DF unit equipped with a dual frequency 300/800 MHz antenna. The EM61 data was collected along parallel survey lines spaced approximately 5 feet apart. The data was reviewed in the field to evaluate the possible presence of USTs and later transferred to a desktop computer for further review. Isolated EM anomalies were identified on the site, including a light, a vehicle, a drain, reinforced concrete, and a water meter.

Based on the EM and geophysical data collected at the site, Pyramid did not observe anomalies that were interpreted to be the results of metallic USTs within about 8 feet of the ground surface. The complete geophysical report is attached as Appendix II.

3.0 Site Assessment Activities

F&R visited the site on August 14, 2017 to perform the Preliminary Site Assessment. The assessment consisted of advancing 5 borings into the soils at the project site using direct-push technology (Geoprobe). The boring locations were determined by F&R staff based on the results of the geophysical survey, site features and proposed construction activities. Three of the borings (B-1 through B-3) were advanced on the northern portion of the site, adjacent to East Main Street. Borings B-4 and B-5 were advanced on the eastern portion of the site, adjacent to Anderson Road. The borings were generally advanced to the proposed depth of 10 feet below ground surface (bgs). However, Borings B-2 through B-4 were terminated at depths ranging from 4.5 to 8 feet bgs, where Geoprobe refusal was encountered. Photos detailing existing site features are attached as Appendix III and boring locations are depicted in Figure 3 of this report.

Soil sample cores from the borings were collected in disposable, 4-foot long acetate sleeves. The soil samples were visually/manually classified and screened in the field using a calibrated photo-ionization detector (PID) for evidence of petroleum hydrocarbons. Evaluation of VOC concentrations were performed using a MiniRae 3000 PID which produces results in parts per million (ppm). A representative soil sample was collected from two foot sections of each sleeve and placed in a re-sealable plastic bag. The vapors were then allowed to equilibrate in the headspace of the bag for approximately ten minutes prior to measurement with the PID. The measurements were collected by placing the probe tip into the headspace of the bag. PID measurements can be found in the Geoprobe Logs in Appendix IV, as well as in Table 1 in Section 5.0 below.



Generally, the soil sample which exhibited the highest PID concentration was submitted for laboratory analysis for diesel range organics (DRO), gasoline range organics (GRO), Total BTEX (benzene, toluene, ethylbenzene and xylenes), 16 PAHs (polycyclic aromatic hydrocarbons) and BaP (Benzo(a)pyrene) by Ultraviolet Fluorescence (UVF) technology (RedLab QED Hydrocarbon Analyzer).

The samples were collected in laboratory-supplied sample containers, placed in a cooler with ice, and shipped via UPS to RedLab in Wilmington, North Carolina following standard chain-of custody procedures.

4.0 Subsurface Conditions

As indicated in the attached Geoprobe Logs (Appendix IV), subsurface conditions from existing ground surface to boring termination primarily included various layers of dry-moist-wet, orange-brown-tan-gray silty sandy clay. The borings were generally terminated at the proposed depth of 10 feet bgs. However, Borings B-2 through B-4 were terminated at depths ranging from 4.5 to 8 feet bgs in interbedded layers of dense clay.

PID readings generally did not exceed 5.8 ppm, and petroleum odors and/or groundwater were not observed during field screening or sample collection activities.

5.0 Analytical Results

As shown in the following table, petroleum hydrocarbons identified as GRO were not detected in the five soil samples obtained from the site. Petroleum hydrocarbons identified as DRO were detected in the soil samples at the five boring locations advanced at the site (B-1 through B-5), at depths from 0 to 2 foot bgs (B-3) to 6 to 8 feet bgs (B-1). The laboratory results indicate that the DRO concentrations ranged from 0.4 mg/kg (B-4) to 5 mg/kg (B-3), which are below the NCDEQ UST Section DRO Action Level of 100 mg/kg.



Table 1
Soil Sampling Analytical Results

Sample ID	Sample Date	Sample Depth (ft bgs)	PID Reading (ppm)	GRO (mg/kg)	DRO (mg/kg)	TPH (mg/kg)	Total BTEX (mg/kg)	Total Aromatics (mg/kg)	16 EPA PAHs (mg/kg)	BaP (mg/k g)
B-1	8/14/17	6-8	2.2	<0.52	0.52	0.52	<0.52	0.29	<0.17	<0.021
B-2		4-6	1.2	<0.56	0.83	0.83	<0.56	0.6	<0.18	<0.023
B-3		0-2	3.4	<0.74	5	5	<0.74	3	<0.24	<0.03
B-4		2-4.5	4.0	<0.4	0.4	0.4	<0.4	0.32	<0.13	<0.016
B-5		4-6	5.8	<0.56	3.1	3.1	<0.56	1.7	<0.18	<0.023
NCDEQ Action Level				50	100	NSE	13.8	NSE	9,068.81	0.088

Concentrations shown in bold exceed the NCDEQ Action Level as outlined in the NCDEQ, DWM, UST Section Guidelines

ppm = parts per million

GRO = Gasoline Range Organics

DRO = Diesel Range Organics

TPH = Total Petroleum Hydrocarbons

BTEX = Benzene, Toluene, Ethylbenzene and Xylenes

NSE = No Standard Exists

6.0 Conclusions and Recommendations

F&R conducted a PSA at the Hoyle D and Jean B Poplin Property addressed as 2228 East Main Street, in Albemarle, Stanly County, North Carolina. A geophysical investigation was performed by Pyramid Environmental & Engineering to investigate the presence and location of USTs in the proposed right-of-way. Based on the results of the geophysical survey, it was determined that USTs were not present within the surveyed area.

Five Geoprobe borings were advanced during the assessment within the proposed right-of-way, where grading activities and storm drain utilities are proposed in association with the NC 24-27 improvements. Based on the results of laboratory testing and observed PID readings, petroleum impacted soils were found in the vicinity of boring locations B-1 through B-5. Laboratory analysis detected concentrations of DRO at these locations; however, the concentrations of these compounds were below the NCDEQ UST Section DRO Action Level of 100 mg/kg.

It should be noted that a delineation of the soil contamination was not performed, as this was not included in the proposed scope of work. The above conclusions are based on interpretations of soil analytical results, PID readings and our experience with petroleum UST releases.



7.0 Limitations

These services have been performed, under authorization of the North Carolina Department of Transportation for specific application on this project. These services have been performed in accordance with generally accepted environmental and hydrogeological practices. No other warranty, expressed or implied is made. As with any subsurface investigation, actual conditions exist only at the precise locations from which samples were taken. Certain inferences are based on the results of sampling and related testing to form a professional opinion of conditions in areas beyond those from which samples were taken. Our conclusions and recommendations are based upon information provided to us by others, our sampling and testing results and our site observations. We have not verified the completeness or accuracy of the information provided by others, unless otherwise noted. Our observations are based upon conditions readily visible at the site at the time of our site visits.

Froehling & Robertson, Inc. by virtue of providing the services described in this report, does not assume the responsibility of the person(s) in charge of the site, or otherwise undertake responsibility for reporting to any local, state or federal public agencies any conditions at the site that may present a potential danger to public health, safety or the environment. In areas that require notification of local, state, or federal public agencies as required by law, it is the Client's responsibility to so notify.

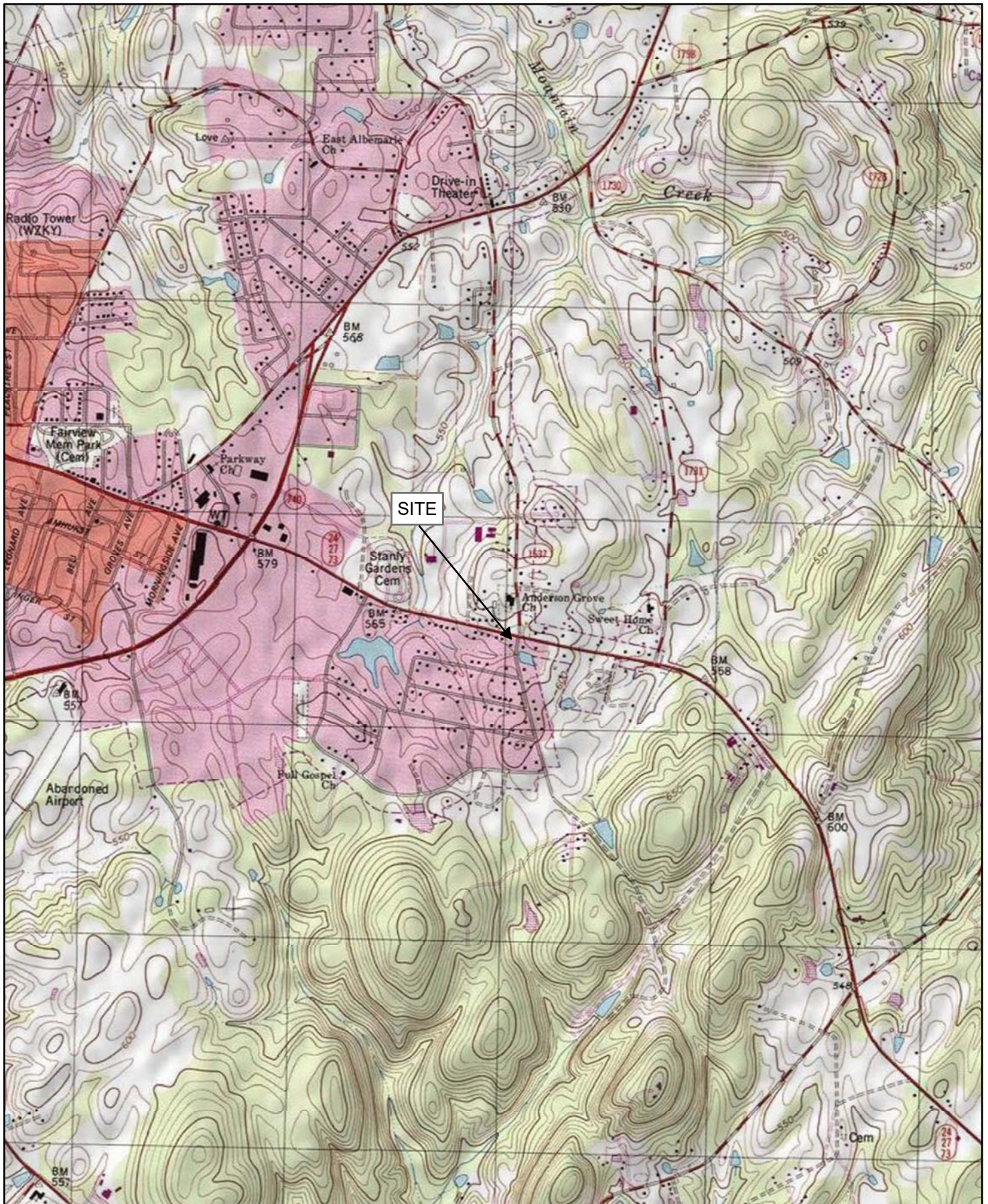


APPENDIX I

Figure No. 1 – SITE VICINITY MAP

Figure No. 2 – TOPOGRAPHIC MAP

Figure No. 3 – LABORATORY RESULTS & BORING LOCATION PLAN



SITE TOPOGRAPHIC MAP

0 1,000 2,000 4,000 6,000 Feet



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Client: NCDOT

Project: R-2530B PSAs

Location: Parcel #052, Albemarle

F&R Project No.: 66V-0092

Date: USGS 2013

Date: October 2017 (Revised Feb. 5, 2018)

2228 East Main Street - Albemarle, North Carolina

Scale: 1:24,000 1 inch = 2,000 feet

Disclaimer: F&R makes no warranties or guarantees regarding the accuracy or completeness of geographic features shown on this map. Spatial accuracy of measurement provided by source agencies can be obtained by contacting F&R.

FIGURE
No.: 1



SITE VICINITY MAP

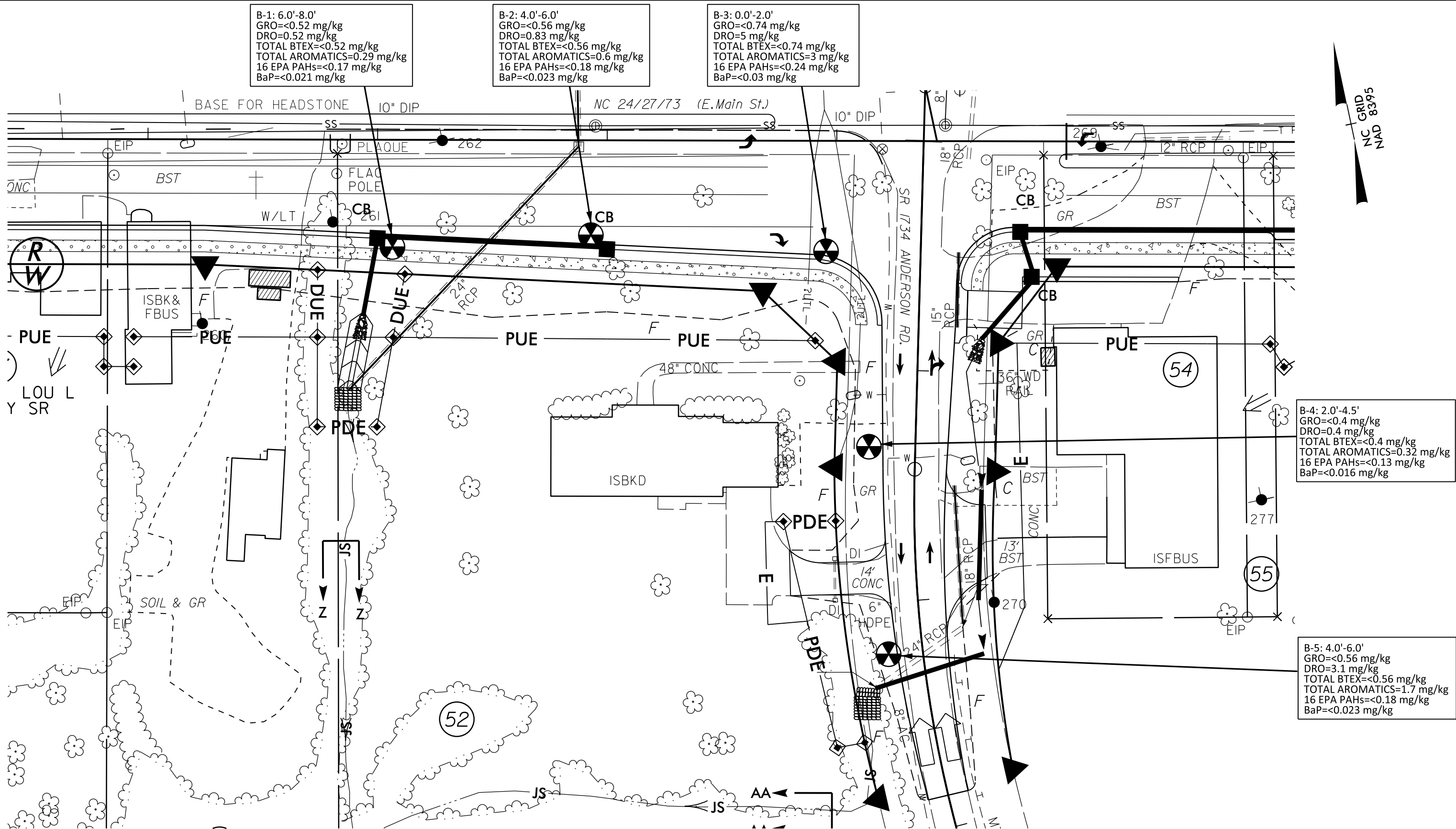


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Client: NCDOT
Project: R-2530B PSAs
Location: Parcel #052, Albemarle
F&R Project No.: 66V-0092
Data: ArcMap Imagery
Date: October 2017 (Revised Feb. 5, 2018)

2228 East Main Street - Albemarle, North Carolina
Scale: 1:2,400 1 inch = 200 feet

Disclaimer: F&R makes no warranties or guarantees regarding the accuracy or completeness of geographic features shown on this map. Spatial accuracy of measurement provided by source agencies can be obtained by contacting F&R.



<div><div><div>SINCE</div><div><div>F&R</div><div>1881</div></div></div><div><div>FROEHLING & ROBERTSON, INC.</div><div>Engineering Stability Since 1881</div><div>310 Hubert Street</div><div>Raleigh, North Carolina 27603-2302 USA</div><div>T 919.828.3441 F 919.828.5751</div><div>www.fandr.com</div></div></div>		<div>LEGEND</div> <div><div></div>Approximate Geoprobe Boring Location</div> <div>Sample data shown in bold exceeded the NCDEQ Action Level as outlined in the NCDEQ DWM UST Section Guidance</div>		<div>LABORATORY RESULTS & BORING LOCATION PLAN</div> <div><div>CLIENT: NCDOT</div><div>PROJECT: 2530B PSAs</div><div>LOCATION: Albemarle, NC Parcel #052, 2228 East Main Street</div><div>F&R PROJECT No.: 66V-092</div><div><div>DRAWN BY: T. T. Walker</div><div>CHECKED BY: B. Whitley, P.E.</div></div><div><div>DATE: February 2018</div><div>SCALE: 1"=40'</div></div></div> <div><div>FIGURE No.:</div><div>3</div></div>		
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APPENDIX II

GEOPHYSICAL REPORT PREPARED BY PYRAMID



PYRAMID GEOPHYSICAL SERVICES
(PROJECT 2017-203)

GEOPHYSICAL SURVEY

METALLIC UST INVESTIGATION: PARCEL 052 NCDOT PROJECT R-2530B

2228 E. MAIN STREET, ALBEMARLE, NC

AUGUST 31, 2017

Report prepared for:

Benjamin Whitley, P.E.
Froehling and Robertson
310 Hubert Street
Raleigh, North Carolina 27603

Prepared by:

A handwritten signature in black ink, appearing to read "E. Cross".

Eric C. Cross, P.G.
NC License #2181

Reviewed by:

A handwritten signature in black ink, appearing to read "Doug Canavella".

Douglas A. Canavella, P.G.
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503 INDUSTRIAL AVENUE, GREENSBORO, NC 27406

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C257: GEOLOGY

C1251: ENGINEERING

GEOPHYSICAL INVESTIGATION REPORT
Parcel 052 – 2228 E. Main Street
Albemarle, Stanly County, North Carolina

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- Figure 2 – Parcel 052 EM61 Results Contour Map
- Figure 3 – Parcel 052 GPR Transect Locations and Select Images
- Figure 4 – Overlay of Geophysical Survey Boundaries on NCDOT Engineering Plans

Appendices

- Appendix A – GPR Transect Images

LIST OF ACRONYMS

CADD	Computer Assisted Drafting and Design
DF	Dual Frequency
EM.....	Electromagnetic
GPR.....	Ground Penetrating Radar
GPS	Global Positioning System
NCDOT.....	North Carolina Department of Transportation
ROW	Right-of-Way
UST	Underground Storage Tank

EXECUTIVE SUMMARY

Project Description: Pyramid Environmental conducted a geophysical investigation for Froehling & Robertson, Inc. (F&R) at Parcel 052, located at 2228 E. Main Street, Albemarle, NC. The survey was part of a North Carolina Department of Transportation (NCDOT) Right-of-Way (ROW) investigation (NCDOT Project R-2530B). F&R directed Pyramid as to the geophysical survey boundaries at the project site, which were designed to extend from the existing edge of pavement to the proposed ROW lines and/or easement lines within the property, whichever distance was greater. Conducted from July 24-25, 2017, the geophysical investigation was performed to determine if unknown, metallic underground storage tanks (USTs) were present beneath the survey area.

Geophysical Results: The geophysical investigation consisted of an electromagnetic (EM) induction-metal detection and ground penetrating radar (GPR) surveys. A total of five EM anomalies were identified. The majority of the EM anomalies were directly attributed to visible cultural features at the ground surface. GPR was performed across the concrete driveway that was suspected to contain metal reinforcement. GPR verified the presence of reinforcement within the concrete. No additional structures were observed beneath the reinforcement. Collectively, the geophysical data did not show any evidence of unknown metallic USTs at Parcel 052.

INTRODUCTION

Pyramid Environmental conducted a geophysical investigation for Froehling and Robertson, Inc. (F&R) at Parcel 052, located at 2228 E. Main Street, Albemarle, NC. The survey was part of a North Carolina Department of Transportation (NCDOT) Right-of-Way (ROW) investigation (NCDOT Project R-2530B). F&R directed Pyramid as to the geophysical survey boundaries at the project site, which were designed to extend from the existing edge of pavement to the proposed ROW lines and/or easement lines within the property, whichever distance was greater. Conducted from July 24-25, 2017, the geophysical investigation was performed to determine if unknown, metallic underground storage tanks (USTs) were present beneath the survey area.

The site included a commercial building surrounded by open grass areas and a concrete driveway. An aerial photograph showing the survey area boundaries and ground-level photographs are shown in **Figure 1**.

FIELD METHODOLOGY

The geophysical investigation consisted of an electromagnetic (EM) induction-metal detection and ground penetrating radar (GPR) surveys. Pyramid collected the EM data using a Geonics EM61 metal detector integrated with a Trimble AG-114 GPS antenna. The integrated GPS system allows the location of the instrument to be recorded in real-time during data collection, resulting in an EM data set that is geo-referenced and can be overlain on aerial photographs and CADD drawings. A boundary grid was established around the perimeter of the site with marks every 10 feet to maintain orientation of the instrument throughout the survey and assure complete coverage of the area.

According to the instrument specifications, the EM61 can detect a metal drum down to a maximum depth of approximately 8 feet. Smaller objects (1-foot or less in size) can be detected to a maximum depth of 4 to 5 feet. The EM61 data were digitally collected at approximately 0.8-foot intervals along north-south trending or east-west trending,

generally parallel survey lines, spaced five feet apart. The data were downloaded to a computer and reviewed in the field and office using the Geonics NAV61 and Surfer for Windows Version 14.0 software programs.

GPR data were acquired across select EM anomalies on July 24, 2017, using a Geophysical Survey Systems, Inc. (GSSI) UtilityScan DF unit equipped with a dual frequency 300/800 MHz antenna. Data were collected both in reconnaissance fashion as well as along formal transect lines across EM features. The GPR data were viewed in real-time using a vertical scan of 512 samples, at a rate of 48 scans per second. GPR data were viewed down to a maximum depth of approximately 6 feet, based on dielectric constants calculated by the DF unit in the field during the reconnaissance scans. GPR transects across specific anomalies were saved to the hard drive of the DF unit for post-processing and figure generation.

Pyramid's classifications of USTs for the purposes of this report are based directly on the geophysical UST ratings provided by the NCDOT. These ratings are as follows:

Geophysical Surveys for Underground Storage Tanks on NCDOT Projects			
High Confidence	Intermediate Confidence	Low Confidence	No Confidence
Known UST Active tank - spatial location, orientation, and approximate depth determined by geophysics.	Probable UST Sufficient geophysical data from both magnetic and radar surveys that is characteristic of a tank. Interpretation may be supported by physical evidence such as fill/vent pipe, metal cover plate, asphalt/concrete patch, etc.	Possible UST Sufficient geophysical data from either magnetic or radar surveys that is characteristic of a tank. Additional data is not sufficient enough to confirm or deny the presence of a UST.	Anomaly noted but not characteristic of a UST. Should be noted in the text and may be called out in the figures at the geophysicist's discretion.

DISCUSSION OF RESULTS

Discussion of EM Results

A contour plot of the EM61 results obtained across the survey area at the property is presented in **Figure 2**. Each EM anomaly is numbered for reference in the figure. The

following table presents the list of EM anomalies and the cause of the metallic response, if known:

LIST OF METALLIC ANOMALIES IDENTIFIED BY EM SURVEY

Metallic Anomaly #	Cause of Anomaly	Investigated with GPR
1	Light	
2	Vehicle	
3	Drain	
4	Reinforced concrete	✓
5	Water meter	

The majority of the EM anomalies were directly attributed to visible cultural features including a light, a vehicle, a drain, and a water meter. EM responses were observed across the concrete driveway on the south side of the building, suggesting the concrete contained metal reinforcement. These features were investigated further by GPR.

Discussion of GPR Results

Figure 3 presents the locations of the formal GPR transects performed at the property, as well as select transect images. A total of seven GPR transects were performed at the site. The transects were performed in a grid-like fashion across the concrete driveway. All of the transects verified that the driveway contained metal reinforcement. No evidence of any larger structures such as USTs was observed beneath the reinforcement. All GPR transect images are presented in **Appendix A**.

Collectively, the geophysical data did not record any evidence metallic USTs at Parcel 052.

Figure 4 provides an overlay of the geophysical survey area onto the NCDOT MicroStation engineering plans (proposed ROW and easements) for reference.

SUMMARY & CONCLUSIONS

Pyramid's evaluation of the EM61 and GPR data collected at Parcel 052 in Albemarle, North Carolina, provides the following summary and conclusions:

- The EM61 and GPR surveys provided reliable results for the detection of metallic USTs within the accessible portions of the geophysical survey area.
- The majority of the EM anomalies were directly attributed to visible cultural features at the ground surface.
- GPR was performed across the concrete driveway that was suspected to contain metal reinforcement. GPR verified the presence of reinforcement within the concrete. No additional structures were observed beneath the reinforcement.
- Collectively, the geophysical data did not show any evidence of unknown metallic USTs at Parcel 052.

LIMITATIONS

Geophysical surveys have been performed and this report was prepared for F&R in accordance with generally accepted guidelines for EM61 and GPR surveys. It is generally recognized that the results of the EM61 and GPR surveys are non-unique and may not represent actual subsurface conditions. The EM61 and GPR results obtained for this project have not conclusively determined the definitive presence or absence of metallic USTs, but the evidence collected is sufficient to result in the conclusions made in this report. Additionally, it should be understood that areas containing extensive vegetation, reinforced concrete, or other restrictions to the accessibility of the geophysical instruments could not be fully investigated.




APPROXIMATE BOUNDARIES OF GEOPHYSICAL SURVEY AREA



View of Survey Area
(Facing Approximately South)

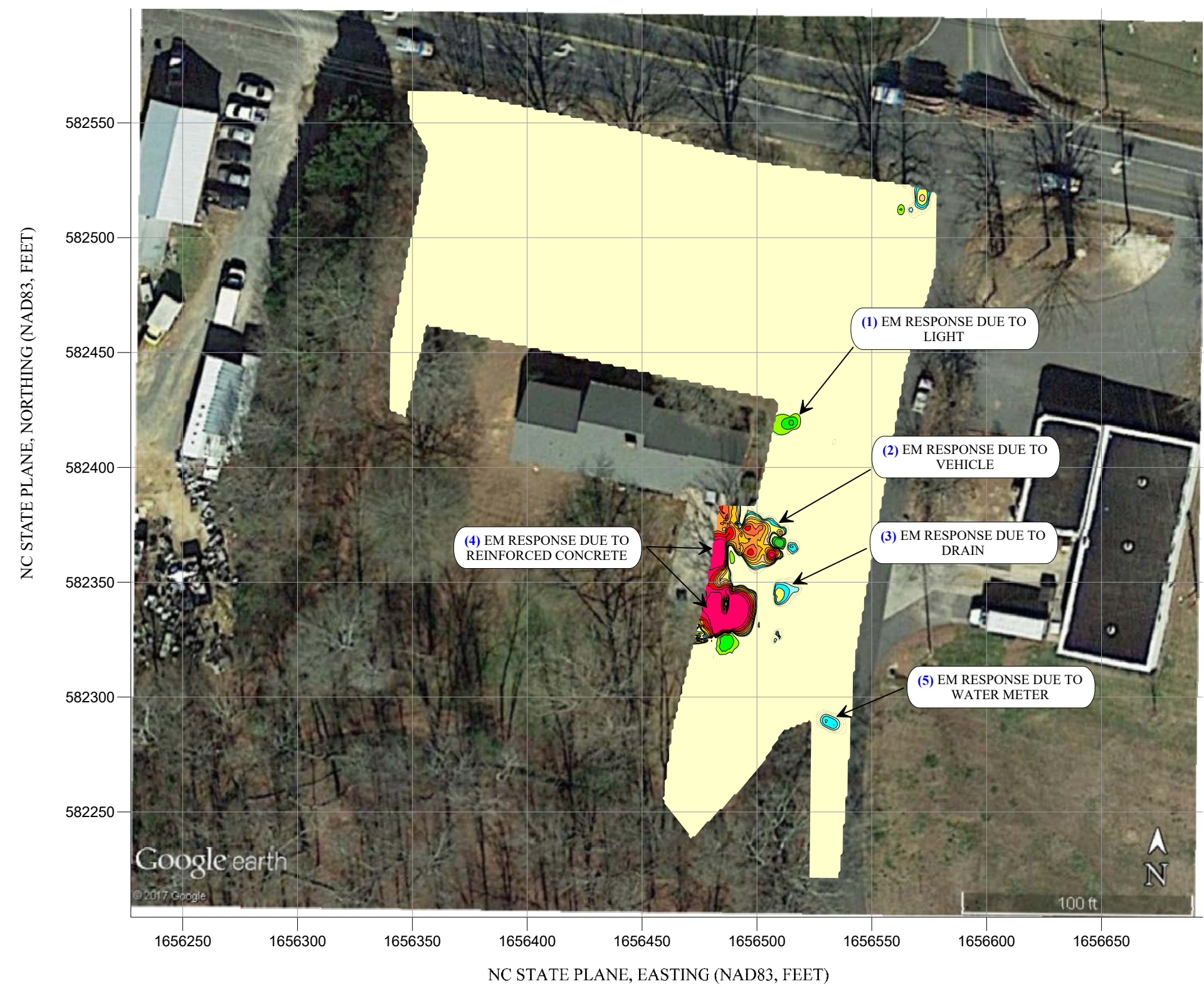


View of Survey Area
(Facing Approximately East)

TITLE PARCEL 52 - GEOPHYSICAL SURVEY BOUNDARIES AND SITE PHOTOGRAPHS		
PROJECT PARCEL 52 ALBEMARLE, NORTH CAROLINA NCDOT PROJECT R-2530B		
		503 INDUSTRIAL AVENUE GREENSBORO, NC 27460 (336) 335-3174 (p) (336) 691-0648 (f) License # C1251 Eng. / License # C257 Geology
DATE	8/24/2017	CLIENT FROEHLING & ROBERTSON
PYRAMID PROJECT #:	2017-203	FIGURE 1



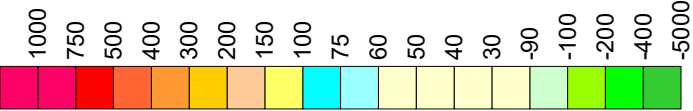
EM61 METAL DETECTION RESULTS




NO EVIDENCE OF
METALLIC USTs OBSERVED.

The contour plot shows the differential results of the EM61 instrument in millivolts (mV). The differential results focus on larger metallic objects such as USTs and drums. The EM61 data were collected on July 24, 2017, using a Geonics EM61 instrument. Verification GPR data were collected on July 25, 2017, using a GSSI UtilityScan DF unit with a dual frequency 300/800 MHz antenna.

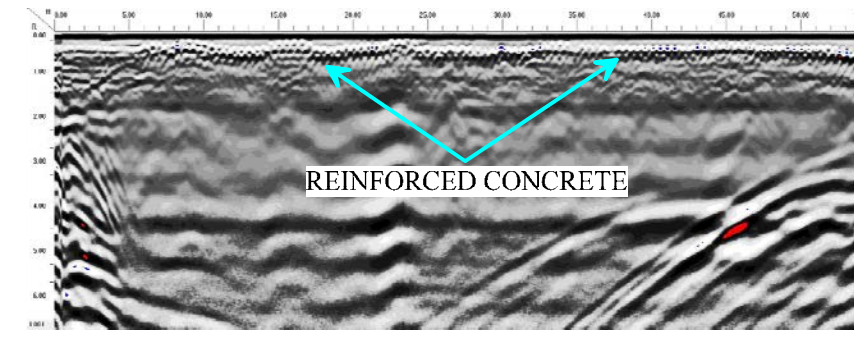
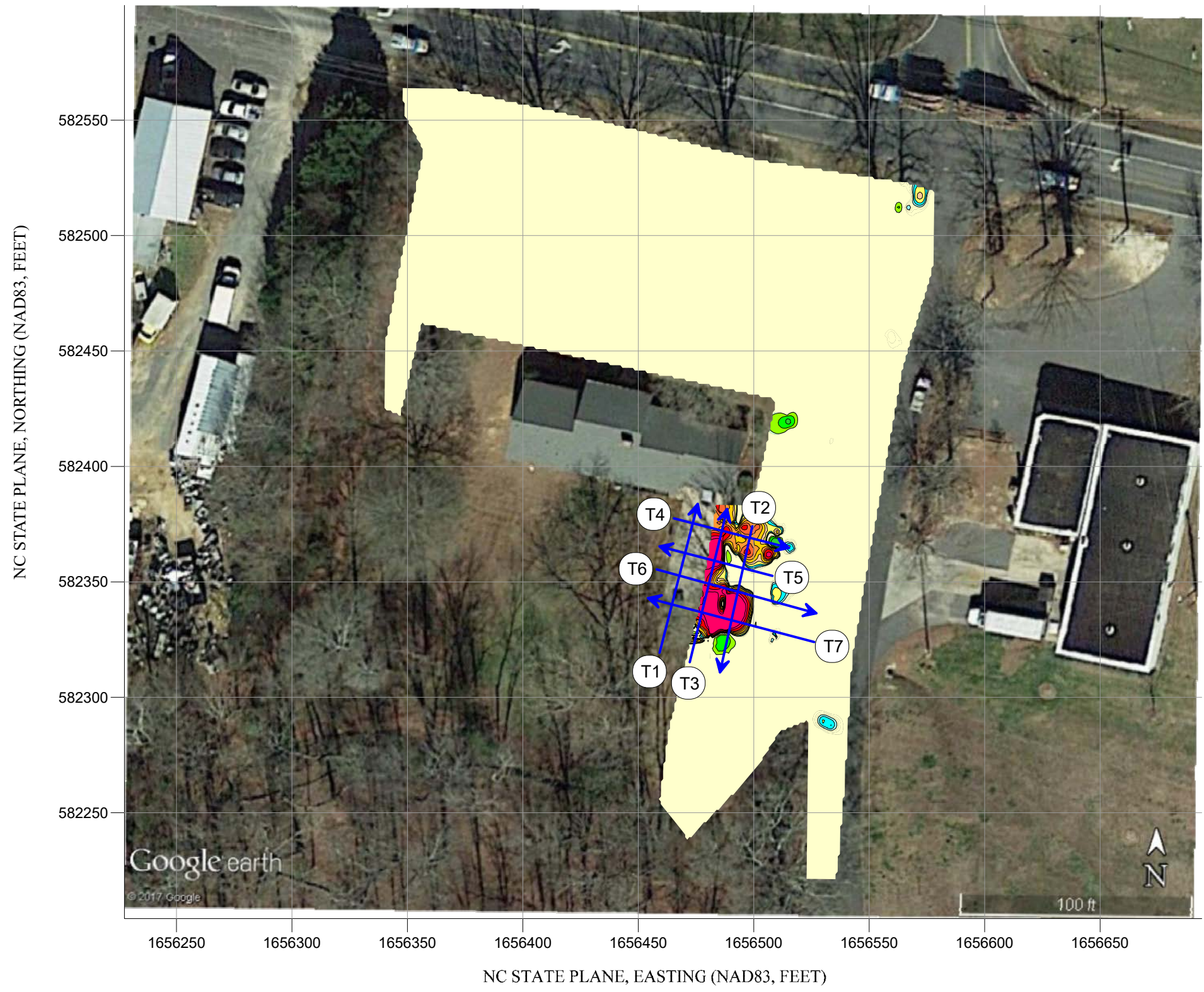
EM61 Metal Detection Response
(millivolts)



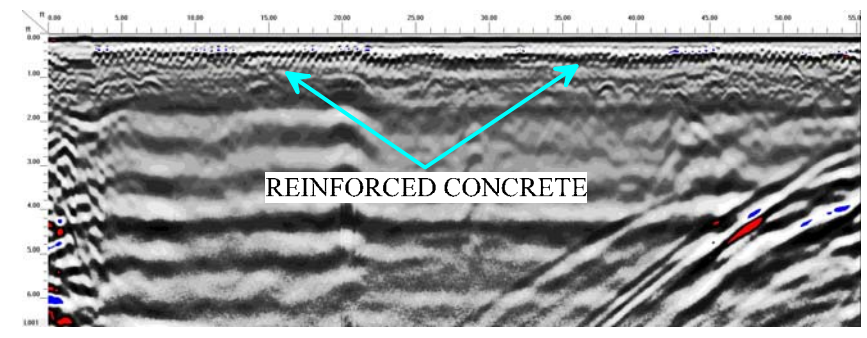
TITLE		PARCEL 52 - EM61 RESULTS CONTOUR MAP	
PROJECT		PARCEL 52 ALBEMARLE, NORTH CAROLINA NCDOT PROJECT R-2530B	
		503 INDUSTRIAL AVENUE GREENSBORO, NC 27460 (336) 335-3174 (p) (336) 691-0648 (f) License # C1251 Eng. / License # C257 Geology	
DATE	8/24/2017	CLIENT FROEHLING & ROBERTSON	
PYRAMID PROJECT #:	2017-203	FIGURE 2	

N↑

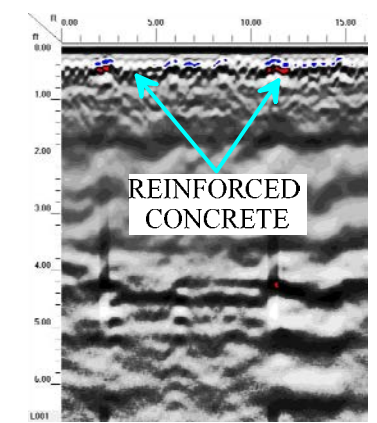
GPR TRANSECT LOCATIONS




GPR TRANSECT 1 (T1)

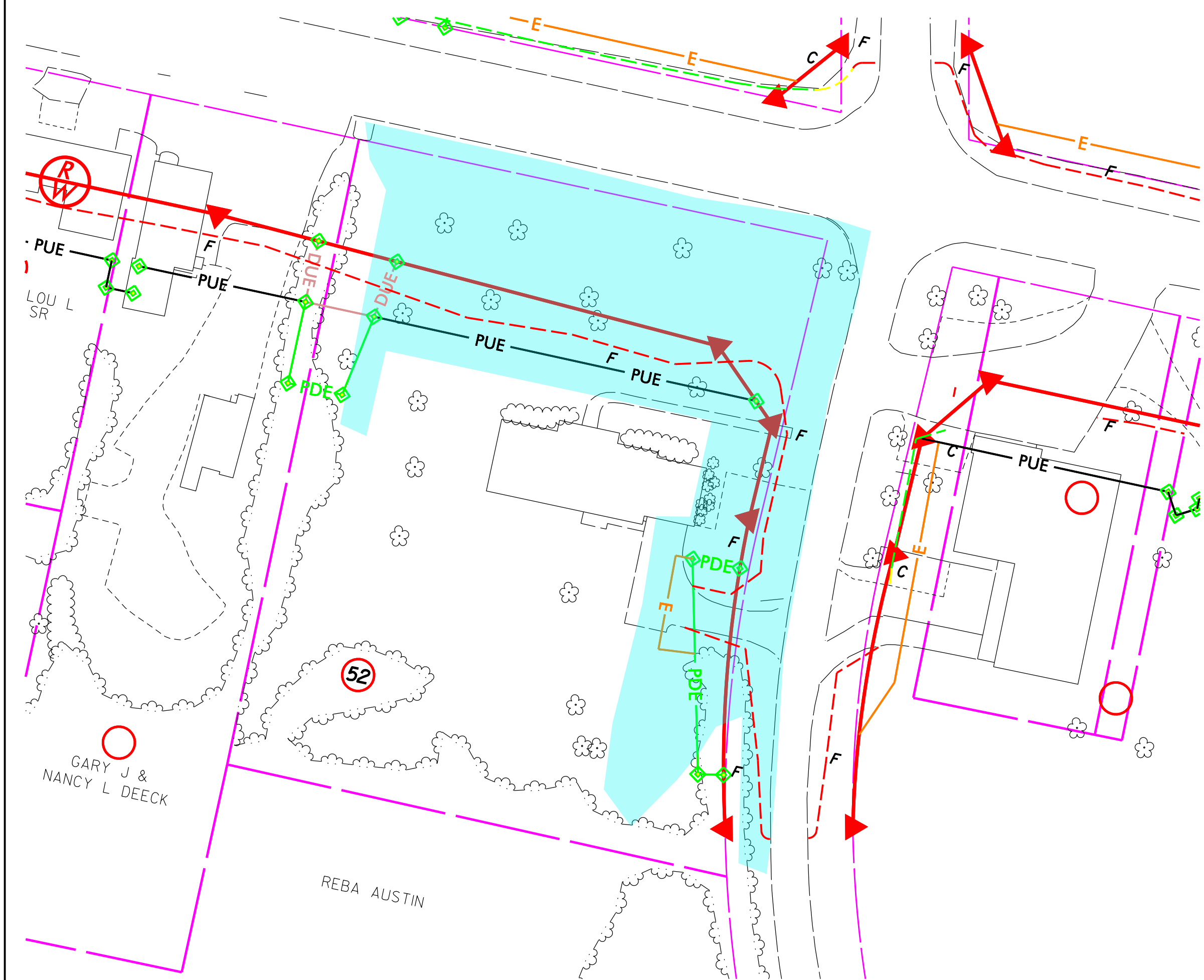


GPR TRANSECT 3 (T3)



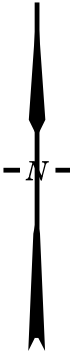
GPR TRANSECT 4 (T4)


TITLE		PARCEL 52 - GPR TRANSECT LOCATIONS AND SELECT IMAGES	
PROJECT		PARCEL 52 ALBEMARLE, NORTH CAROLINA NCDOT PROJECT R-2530B	
		503 INDUSTRIAL AVENUE GREENSBORO, NC 27460 (336) 335-3174 (p) (336) 691-0648 (f) License # C1251 Eng. / License # C257 Geology	
DATE	8/24/2017	CLIENT	FROEHLING & ROBERTSON
PYRAMID PROJECT #:	2017-203	FIGURE 3	



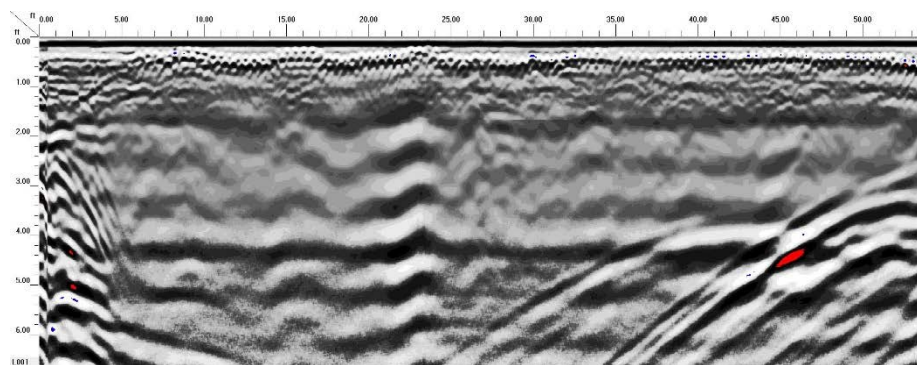
LEGEND

- EXISTING ROW
- EXISTING PROPERTY BOUNDARY
- PROPOSED ROW LINE
- TEMPORARY CONSTRUCTION EASEMENT
- PROPOSED PERMANENT DRAINAGE
- PROPOSED PERMANENT UTILITY
- PROPOSED SS CUT LINE
- PROPOSED SS FILL LINE
- GEOPHYSICAL SURVEY AREA

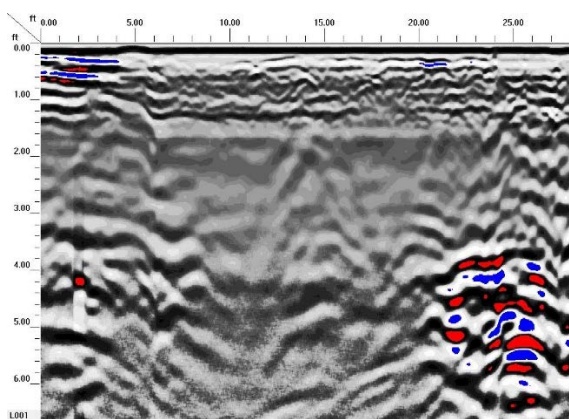
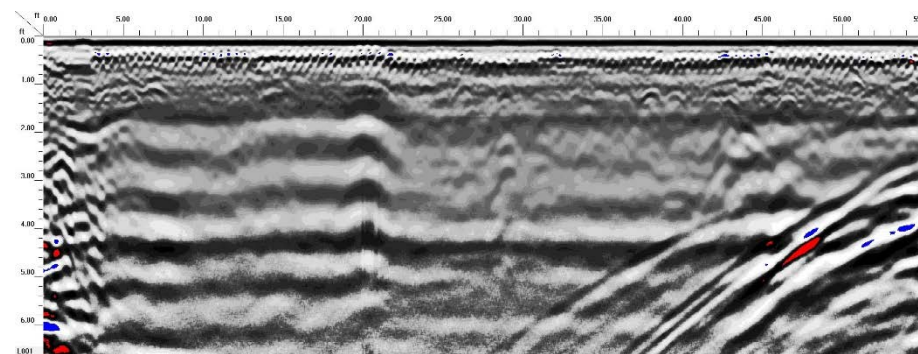


TITLE OVERLAY OF GEOPHYSICAL SURVEY BOUNDARIES ON NCDOT ENGINEERING PLANS	
PROJECT PARCEL 052 ALBEMARLE, NORTH CAROLINA NCDOT PROJECT R-2530B	
<div> 503 INDUSTRIAL AVENUE GREENSBORO, NC 27406 336.335.3174 (p) 336.691.0648 (f) License # C1251 Eng. / #C257 Geology</div>	
DATE: 8-24-17	REVISION NO. 0
PYRAMID PROJECT NO. 2017-203	FIGURE NO. 4

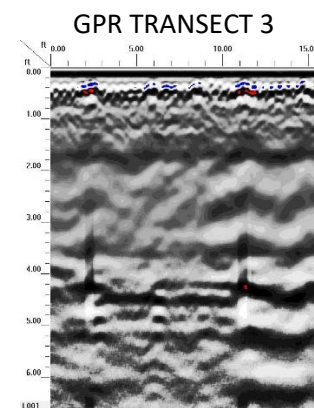
Appendix A – GPR Transect Images



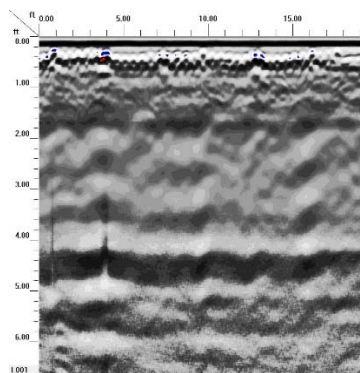
GPR TRANSECT 1



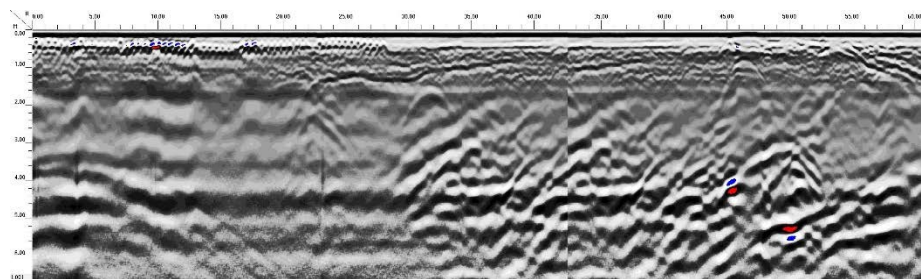
GPR TRANSECT 2



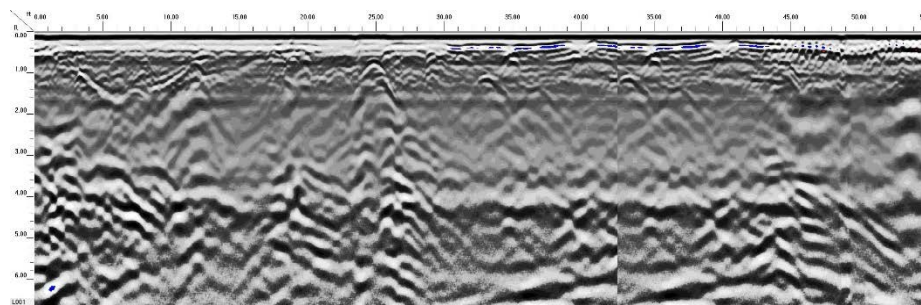
GPR TRANSECT 3



GPR TRANSECT 5



GPR TRANSECT 6



GPR TRANSECT 7



APPENDIX III

GEOPROBE LOGS



FROEHLING & ROBERTSON, INC.

GEOPROBE LOG

Boring: P052 B-1 (1 of 1)

Project No: 66V-0092

Client: NCDOT

Project: R2530B PSAs

City/State: ALBEMARLE, NC

Elevation: EXISTING

Total Depth: 10.0'

Boring Location: SEE BORING LOCATION PLAN

Drilling Method: DIRECT PUSH

Hammer Type: Automatic

Date Drilled: 8/14/17

Driller: REGIONAL PROBING

Elevation	Depth	Description of Materials (Classification)	*Sample Depth (feet)	PID (ppm)	Remarks
		Dry Brown Silty Sandy Clay			One sample collected for laboratory analysis (6.0-8.0)
	2.0	Dry Tan Silty Sandy Clay	2.0	1.7	No petroleum odors observed.
	4.0		4.0	0.6	
	6.0	Moist Gray Silty Clay	6.0	2.0	
	8.0		8.0	2.2	
	10.0	Geoprobe Boring Terminated at 10 feet.	10.0	1.7	



FROEHLING & ROBERTSON, INC.

GEOPROBE LOG

Boring: P052 B-2 (1 of 1)

Project No: 66V-0092

Client: NCDOT

Project: R2530B PSAs

City/State: ALBEMARLE, NC

Elevation: EXISTING

Total Depth: 8.0'

Boring Location: SEE BORING LOCATION PLAN

Drilling Method: DIRECT PUSH

Hammer Type: Automatic

Date Drilled: 8/14/17

Driller: REGIONAL PROBING

Elevation	Depth	Description of Materials (Classification)	*Sample Depth (feet)	PID (ppm)	Remarks
		Dry Brown Silty Sandy Clay			One sample collected for laboratory analysis (4.0-6.0)
	2.0	Dry Tan Silty Sandy Clay	2.0	1.2	No petroleum odors observed.
	4.0		4.0	1.2	
	6.0	Moist Gray Silty Clay	6.0	1.2	
	8.0	Geoprobe Boring Terminated at 8 feet.	8.0	0.7	



FROEHLING & ROBERTSON, INC.

GEOPROBE LOG

Boring: P052 B-3 (1 of 1)

Project No: 66V-0092

Client: NCDOT

Project: R2530B PSAs

City/State: ALBEMARLE, NC

Elevation: EXISTING

Total Depth: 4.5'

Boring Location: SEE BORING LOCATION PLAN

Drilling Method: DIRECT PUSH

Hammer Type: Automatic

Date Drilled: 8/14/17

Driller: REGIONAL PROBING

Elevation	Depth	Description of Materials (Classification)	*Sample Depth (feet)	PID (ppm)	Remarks
		Dry Brown Silty Clay			One sample collected for laboratory analysis (0.0-2.0)
	2.0	Dry Tan Silty Clay	2.0	3.4	No petroleum odors observed.
	4.5	Geoprobe Boring Terminated by Direct Push Refusal at 4.5 feet.	4.5	1.5	



FROEHLING & ROBERTSON, INC.

GEOPROBE LOG

Boring: P052 B-4 (1 of 1)

Project No: 66V-0092

Client: NCDOT

Project: R2530B PSAs

City/State: ALBEMARLE, NC

Elevation: EXISTING

Total Depth: 4.5'

Boring Location: SEE BORING LOCATION PLAN

Drilling Method: DIRECT PUSH

Hammer Type: Automatic

Date Drilled: 8/14/17

Driller: REGIONAL PROBING

Elevation	Depth	Description of Materials (Classification)	*Sample Depth (feet)	PID (ppm)	Remarks
		Dry Tan Silty Clay			One Sample Collected for Laboratory Analysis (2.0 - 4.5)
	2.0		2.0	2.8	No petroleum odors observed.
	4.5	Geoprobe Boring Terminated at 4.5 feet.	4.5	4.0	



FROEHLING & ROBERTSON, INC.

GEOPROBE LOG

Boring: P052 B-5 (1 of 1)

Project No: 66V-0092

Client: NCDOT

Project: R2530B PSAs

City/State: ALBEMARLE, NC

Elevation: EXISTING

Total Depth: 10.0'

Boring Location: SEE BORING LOCATION PLAN

Drilling Method: DIRECT PUSH

Hammer Type: Automatic

Date Drilled: 8/14/17

Driller: REGIONAL PROBING

Elevation	Depth	Description of Materials (Classification)	*Sample Depth (feet)	PID (ppm)	Remarks
		Mosit Brown Silty Clay			One sample collected for laboratory analysis (4.0-6.0) No petroleum odors observed.
	2.0		2.0	5.0	
	4.0		4.0	4.4	
	6.0	Wet Tan Silty Clay	6.0	5.8	
	8.0		8.0	5.5	
	10.0	Geoprobe Boring Terminated at 10 feet.	10.0	4.6	



APPENDIX IV

SITE PHOTOS



B-1

Photo #1: Boring location B-1, facing west.



B-2

Photo #2: Boring location B-2, facing east.



Photo #3: Boring location B-3 and B-4, facing north.



Photo #4: Boring location B-5, facing north.



APPENDIX V

LABORATORY ANALYTICAL RESULTS



Hydrocarbon Analysis Results

Thursday, August 17, 2017
Thursday, August 17, 2017
Friday, August 18, 2017

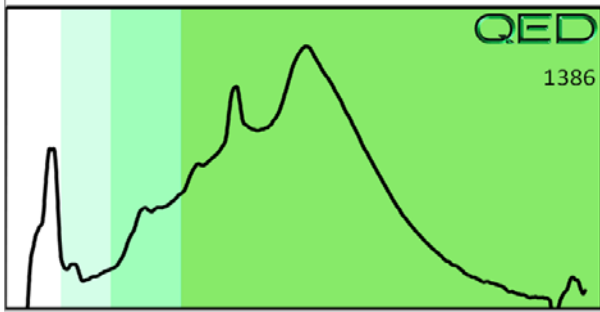
Operator PANTESCO

		U00904
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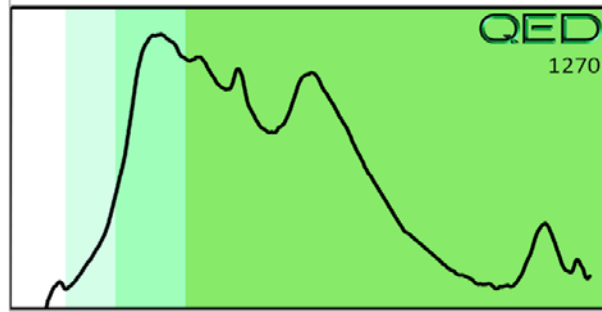
Concentration values in mg/kg for soil samples and mg/L for water samples. Soil values uncorrected for moisture or stone content. Fingerprints provide a tentative hydrocarbon identification.

% Ratios estimated aromatic carbon number proportions : HC = Hydrocarbon : PHC = Petroleum HC : FP = Fingerprint only. **Data generated by HC-1 Analyser**

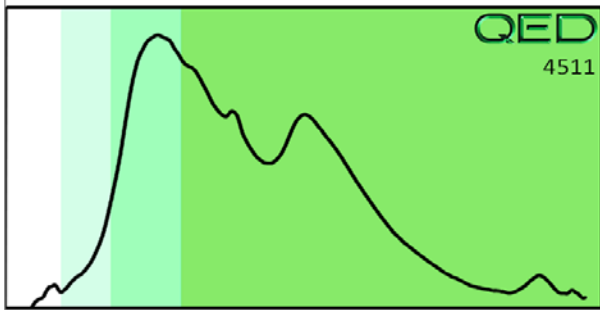
P052-B1 (6-8) : Residual HC,(BO)



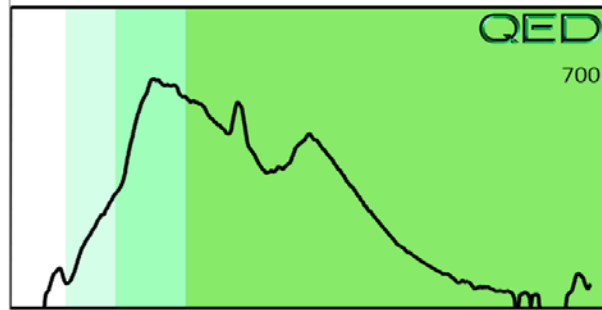
P052-B2 (4-6) : V.Deg.PHC 76.6%,(FCM),(BO)



P052-B3 (0-2) : V.Deg.PHC 90.1%,(FCM),(BO)



P052-B4 (2-4.5) : V.Deg.PHC 77.5%,(FCM)



P052-B5 (4-6) : V.Deg.PHC 93.3%,(FCM),(P)

